

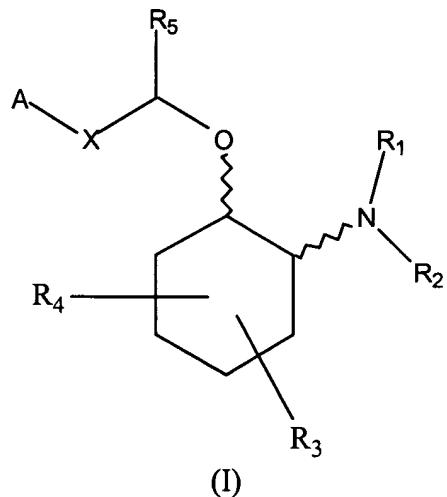
**Amendments to the Claims:**

This listing of claims will replace all prior versions, and listings, of claims in the application:

**Listing of Claims:**

1-159. (Cancelled)

160. (Currently Amended) A compound of formula (I), or a solvate or pharmaceutically acceptable salt thereof:



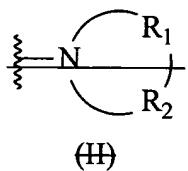
wherein, independently at each occurrence,

$X$  is selected from  $-C(R_6, R_{14})-Y-$ , and  $-C(R_{13})=CH-$ ;

$Y$  is selected from a direct bond, O, S, and  $C_1-C_4$ alkylene;

$R_{13}$  is selected from hydrogen,  $C_1-C_6$ alkyl,  $C_3-C_8$ cycloalkyl, aryl, and benzyl;

$R_1$  and  $R_2$ , when taken together with the nitrogen atom to which they are directly attached in formula (I) form a morpholinyl ring, form a ring denoted by formula (II):



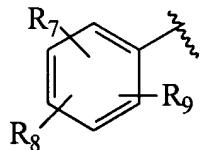
wherein the ring of formula (II) is formed from the nitrogen as shown as well as three to nine additional ring atoms independently selected from carbon, nitrogen, oxygen, and sulfur; where any two adjacent ring atoms may be joined together by single or double bonds, and where any one or more of the additional carbon ring atoms may be substituted with one or two substituents selected from hydrogen, hydroxy, C<sub>1</sub>-C<sub>3</sub>hydroxyalkyl, oxo, C<sub>2</sub>-C<sub>4</sub>acyl, C<sub>1</sub>-C<sub>3</sub>alkyl, C<sub>2</sub>-C<sub>4</sub>alkylcarboxy, C<sub>1</sub>-C<sub>3</sub>alkoxy, and C<sub>1</sub>-C<sub>20</sub>alkanoyloxy; or may be substituted to form a spiro five- or six-membered heterocyclic ring containing one or two heteroatoms selected from oxygen and sulfur; and any two adjacent additional carbon ring atoms may be fused to a C<sub>3</sub>-C<sub>8</sub>carboyclic ring, and any one or more of the additional nitrogen ring atoms may be substituted with substituents selected from hydrogen, C<sub>1</sub>-C<sub>6</sub>alkyl, C<sub>2</sub>-C<sub>4</sub>acyl, C<sub>2</sub>-C<sub>4</sub>hydroxyalkyl and C<sub>3</sub>-C<sub>8</sub>alkoxyalkyl; or

R<sub>4</sub> and R<sub>2</sub>, when taken together with the nitrogen atom to which they are directly attached in formula (I), may form a bicyclic ring system selected from 3-azabicyclo[3.2.2]nonan-3-yl, 2-azabicyclo[2.2.2]octan-2-yl, 3-azabicyclo[3.1.0]hexan-3-yl, and 3-azabicyclo[3.2.0]heptan-3-yl;

R<sub>3</sub> and R<sub>4</sub> are independently attached to the cyclohexane ring shown in formula (I) at the 3-, 4-, 5- or 6- positions and are independently selected from hydrogen, hydroxy, C<sub>1</sub>-C<sub>6</sub>alkyl, and C<sub>1</sub>-C<sub>6</sub>alkoxy;

R<sub>5</sub>, R<sub>6</sub> and R<sub>14</sub> are independently selected from hydrogen, C<sub>1</sub>-C<sub>6</sub>alkyl, aryl and benzyl;

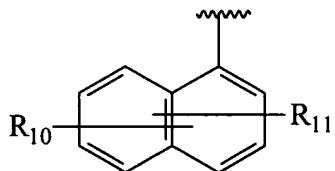
A is selected from C<sub>5</sub>-C<sub>12</sub>alkyl, a C<sub>3</sub>-C<sub>13</sub>carbocyclic ring, and ring systems selected from formulae (III), (IV), (V), (VI), (VII) and (VIII):



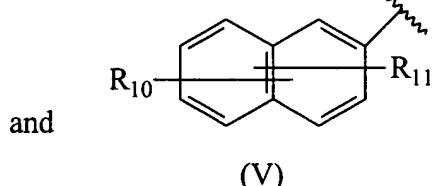
(III)

where R<sub>7</sub>, R<sub>8</sub> and R<sub>9</sub> are independently selected from bromine, chlorine, fluorine, carboxy, hydrogen, hydroxy, hydroxymethyl, methanesulfonamido, nitro, sulfamyl, trifluoromethyl,

C<sub>2</sub>-C<sub>7</sub>alkanoyloxy, C<sub>1</sub>-C<sub>6</sub>alkyl, C<sub>1</sub>-C<sub>6</sub>alkoxy, C<sub>2</sub>-C<sub>7</sub>alkoxycarbonyl, C<sub>1</sub>-C<sub>6</sub>thioalkyl and N(R<sub>15</sub>,R<sub>16</sub>) where R<sub>15</sub> and R<sub>16</sub> are independently selected from hydrogen, acetyl, methanesulfonyl, and C<sub>1</sub>-C<sub>6</sub>alkyl;

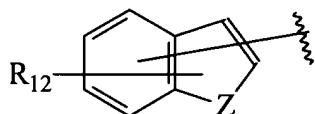


(IV)



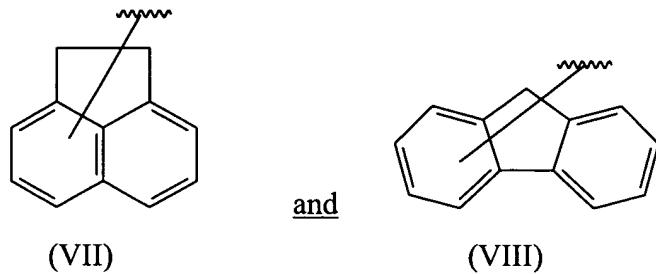
(V)

where R<sub>10</sub> and R<sub>11</sub> are independently selected from bromine, chlorine, fluorine, carboxy, hydrogen, hydroxy, hydroxymethyl, methanesulfonamido, nitro, sulfamyl, trifluoromethyl, C<sub>2</sub>-C<sub>7</sub>alkanoyloxy, C<sub>1</sub>-C<sub>6</sub>alkyl, C<sub>1</sub>-C<sub>6</sub>alkoxy, C<sub>2</sub>-C<sub>7</sub>alkoxycarbonyl, C<sub>1</sub>-C<sub>6</sub>thioalkyl, and N(R<sub>15</sub>,R<sub>16</sub>) where R<sub>15</sub> and R<sub>16</sub> are independently selected from hydrogen, acetyl, methanesulfonyl, and C<sub>1</sub>-C<sub>6</sub>alkyl;



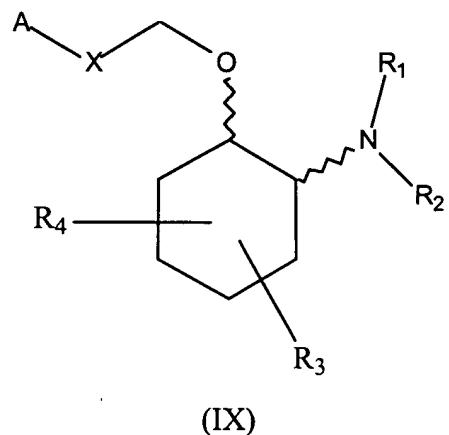
(VI)

where R<sub>12</sub> is selected from bromine, chlorine, fluorine, carboxy, hydrogen, hydroxy, hydroxymethyl, methanesulfonamido, nitro, sulfamyl, trifluoromethyl, C<sub>2</sub>-C<sub>7</sub>alkanoyloxy, C<sub>1</sub>-C<sub>6</sub>alkyl, C<sub>1</sub>-C<sub>6</sub>alkoxy, C<sub>2</sub>-C<sub>7</sub>alkoxycarbonyl, C<sub>1</sub>-C<sub>6</sub>thioalkyl, and N(R<sub>15</sub>,R<sub>16</sub>) where R<sub>15</sub> and R<sub>16</sub> are independently selected from hydrogen, acetyl, methanesulfonyl, and C<sub>1</sub>-C<sub>6</sub>alkyl; and Z is selected from CH, CH<sub>2</sub>, O, N and S, where Z may be directly bonded to "X" as shown in formula (I) when Z is CH or N, or Z may be directly bonded to R<sub>17</sub> when Z is N, and R<sub>17</sub> is selected from hydrogen, C<sub>1</sub>-C<sub>6</sub>alkyl, C<sub>3</sub>-C<sub>8</sub>cycloalkyl, aryl and benzyl;



including isolated enantiomeric, diastereomeric and geometric isomers thereof, and mixtures thereof.

161. (Currently Amended) A compound according to claim 160 having formula (IX), or a solvate or pharmaceutically acceptable salt thereof:



wherein, independently at each occurrence,

X is selected from -C(R<sub>6</sub>,R<sub>14</sub>)-Y-, and -C(R<sub>13</sub>)=CH-;

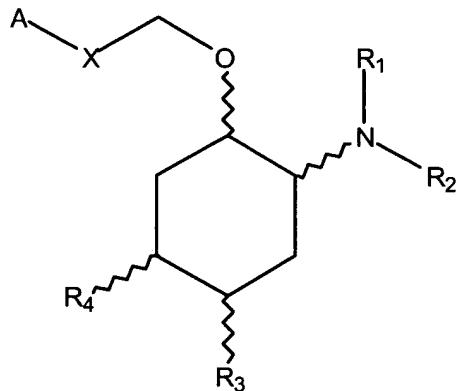
Y is selected from a direct bond, O and S; and

R<sub>1</sub>, R<sub>2</sub>, R<sub>3</sub>, R<sub>4</sub>, R<sub>6</sub>, R<sub>7</sub>, R<sub>8</sub>, R<sub>9</sub>, R<sub>10</sub>, R<sub>11</sub>, R<sub>12</sub>, R<sub>14</sub>, A and Z are defined as in claim 160;

including isolated enantiomeric, diastereomeric and geometric isomers thereof,

and mixtures thereof.

162. (Currently Amended) A compound of claim 160 having formula (X), or a solvate or pharmaceutically acceptable salt thereof:



(X)

wherein, independently at each occurrence,

X is selected from -C(R<sub>6</sub>,R<sub>14</sub>)-Y-, and -C(R<sub>13</sub>)=CH-;

Y is selected from a direct bond, O, and S;

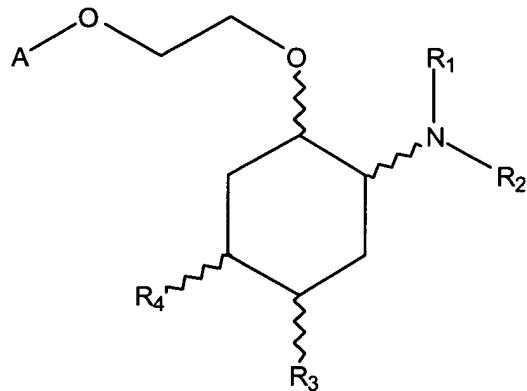
R<sub>1</sub>, R<sub>2</sub>, R<sub>6</sub> and R<sub>14</sub> are defined as in claim 160;

R<sub>3</sub> and R<sub>4</sub> are independently selected from hydrogen and C<sub>1</sub>-C<sub>6</sub>alkoxy; and

A is selected from C<sub>5</sub>-C<sub>12</sub>alkyl, C<sub>3</sub>-C<sub>8</sub>cycloalkyl, and any of formulae (III), (IV), (V), and (VI) as defined in claim 160, wherein Z, R<sub>7</sub>, R<sub>8</sub>, R<sub>9</sub>, R<sub>10</sub>, R<sub>11</sub> and R<sub>12</sub> are defined as in claim 160;

including isolated enantiomeric, diastereomeric and geometric isomers thereof, and mixtures thereof.

163. (Currently Amended) A compound of claim 160 having formula (XI), or a solvate or pharmaceutically acceptable salt thereof:



(XI)

wherein, ~~independently at each occurrence;~~,

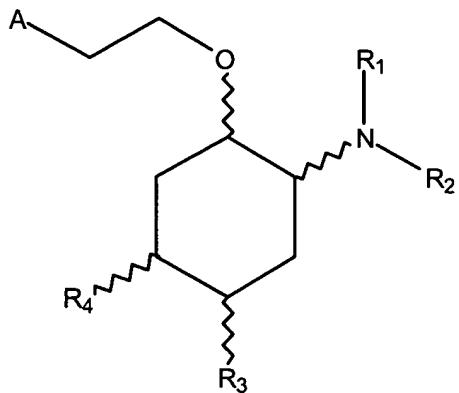
R<sub>1</sub> and R<sub>2</sub> are defined as in claim 160;

R<sub>3</sub> and R<sub>4</sub> are independently selected from hydrogen and methoxy; and

A is selected from C<sub>5</sub>-C<sub>12</sub>alkyl, C<sub>3</sub>-C<sub>8</sub>cycloalkyl, and any of formulae (III), (IV), (V), and (VI) as defined in claim 160, wherein Z, R<sub>7</sub>, R<sub>8</sub>, R<sub>9</sub>, R<sub>10</sub>, R<sub>11</sub> and R<sub>12</sub> are defined as in claim 160;

including isolated enantiomeric, diastereomeric and geometric isomers thereof, and mixtures thereof.

164. (Currently Amended) A compound of claim 160 having formula (XII), or a solvate or pharmaceutically acceptable salt thereof:



(XII)

wherein, ~~independently at each occurrence;~~

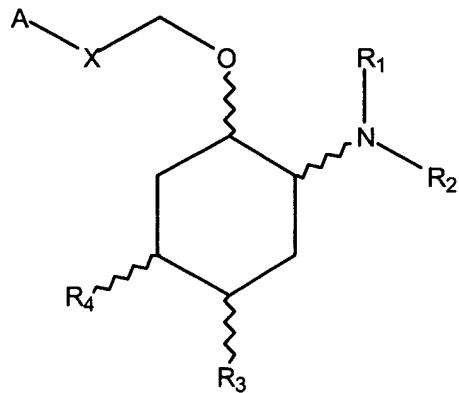
R<sub>1</sub> and R<sub>2</sub> are defined as in claim 160;

R<sub>3</sub> and R<sub>4</sub> are independently selected from hydrogen and methoxy; and

A is selected from C<sub>5</sub>-C<sub>12</sub>alkyl, C<sub>3</sub>-C<sub>8</sub>cycloalkyl, and any of formulae (III), (IV), (V) and (VI) as defined in claim 160, wherein Z, R<sub>7</sub>, R<sub>8</sub>, R<sub>9</sub>, R<sub>10</sub>, R<sub>11</sub> and R<sub>12</sub> are defined as in claim 160;

including isolated enantiomeric, diastereomeric and geometric isomers thereof, and mixtures thereof.

165. (Currently Amended) A compound of claim 160 having formula (XIII), or a solvate or pharmaceutically acceptable salt thereof:



(XIII)

wherein, ~~independently at each occurrence,~~

X is selected from -C(R<sub>6</sub>,R<sub>14</sub>)-Y- and -CH=CH-;

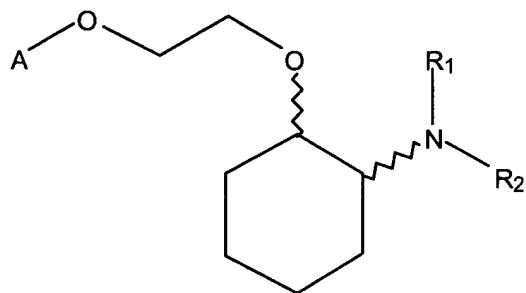
Y, R<sub>1</sub>, R<sub>2</sub>, R<sub>6</sub> and R<sub>14</sub> are defined as in claim 160;

R<sub>3</sub> and R<sub>4</sub> are independently selected from hydrogen and methoxy; and

A is selected from C<sub>3</sub>-C<sub>8</sub>cycloalkyl and any of formulae (III), (IV), (V), (VI), (VII) and (VIII) as defined in claim 160, where R<sub>8</sub> and R<sub>9</sub> are defined as in claim 160 49, R<sub>7</sub>, R<sub>10</sub>, R<sub>11</sub> and R<sub>12</sub> are hydrogen, and Z is selected from O, S and N-R<sub>17</sub> where R<sub>17</sub> is selected from hydrogen and methyl;

including isolated enantiomeric, diastereomeric and geometric isomers thereof, and mixtures thereof.

166. (Currently Amended) A compound of claim 160 having formula (XIV), or a solvate or pharmaceutically acceptable salt thereof:



(XIV)

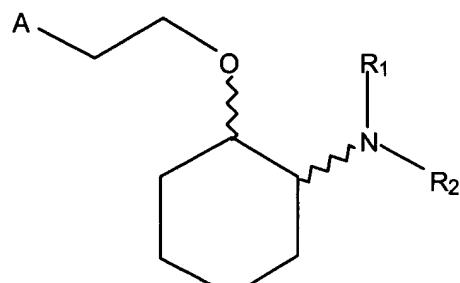
wherein, ~~independently at each occurrence,~~

R<sub>1</sub> and R<sub>2</sub> are defined as in claim 160; and

A is selected from any of formulae (III), (IV), (V) and (VI) as defined in claim 160, wherein R<sub>7</sub>, R<sub>10</sub>, R<sub>11</sub> and R<sub>12</sub> are hydrogen, R<sub>8</sub> and R<sub>9</sub> are independently selected from hydrogen, hydroxy, fluorine, chlorine, bromine, methanesulfonamido, methanoyloxy, methoxycarbonyl, nitro, sulfamyl, thiomethyl, trifluoromethyl, methyl, ethyl, methoxy, ethoxy and NH<sub>2</sub>; and Z is selected from O and S;

including isolated enantiomeric, diastereomeric and geometric isomers thereof, and mixtures thereof.

167. (Currently Amended) A compound of claim 160 having formula (XV), or a solvate or pharmaceutically acceptable salt thereof:



(XV)

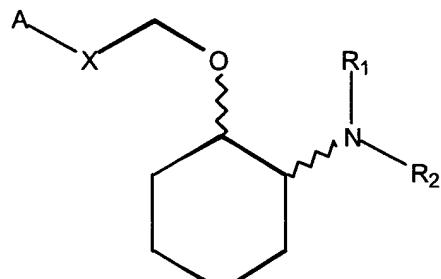
wherein, independently at each occurrence,

R<sub>1</sub> and R<sub>2</sub> are defined as in claim 160; and

A is selected from any of formulae (III), (IV), (V) and (VI) as defined in claim 160, wherein R<sub>7</sub>, R<sub>10</sub>, R<sub>11</sub> and R<sub>12</sub> are hydrogen, R<sub>8</sub> and R<sub>9</sub> are independently selected from hydrogen, hydroxy, fluorine, chlorine, bromine, methanesulfonamido, methanoyloxy, methoxycarbonyl, nitro, sulfamyl, thiomethyl, trifluoromethyl, methyl, ethyl, methoxy, ethoxy and NH<sub>2</sub>; and Z is selected from O and S;

including isolated enantiomeric, diastereomeric and geometric isomers thereof, and mixtures thereof.

168. (Currently Amended) A compound of claim 160 having formula (XVI), or a solvate or pharmaceutically acceptable salt thereof:



(XVI)

wherein, independently at each occurrence,

X is selected from *trans*-CH=CH-, -CH<sub>2</sub>- and -CH<sub>2</sub>-O-;

R<sub>1</sub> and R<sub>2</sub> taken together with the nitrogen atom to which they are attached form a ring selected from ~~pyrrolidinyl~~, ~~2-ketopyrrolidinyl~~, ~~3-ketopyrrolidinyl~~, ~~2-acetoxypyrrrolidinyl~~, ~~3-acetoxypyrrrolidinyl~~, ~~2-hydroxypyrrrolidinyl~~, ~~3-hydroxypyrrrolidinyl~~, ~~thiazolidinyl~~, ~~piperidinyl~~, ~~2-ketopiperidinyl~~, ~~3-ketopiperidinyl~~, ~~4-ketopiperidinyl~~, ~~acetyl piperazinyl~~, ~~1,4-dioxa-7-azaspiro[4.4]non-7-yl~~, ~~hexahydroazepinyl~~, ~~morpholinyl~~, ~~N-methylpiperazinyl~~ and ~~3-azabicyclo[3.2.2]nonanyl~~; and

A is selected from cyclohexyl, monochlorophenyl, 2,6-dichlorophenyl, 3,4-dichlorophenyl, 2-bromophenyl, 2,4-dibromophenyl, 3-bromophenyl, 4-bromophenyl, 3,4-dimethoxyphenyl, 1-naphthyl, 2-naphthyl, 3-benzo(b)thiophenyl, 4-benzo(b)thiophenyl, (2-trifluoromethyl)phenyl, 2,4-di(trifluoromethyl)phenyl, and (4-trifluoromethyl)phenyl;

including isolated enantiomeric, diastereomeric and geometric isomers thereof, and mixtures thereof.

169. (Currently Amended) A compound, or mixture comprising compounds, selected from the group consisting of:

(+)-*trans*-[2-(4-morpholinyl)-1-(2-naphthenethoxy)]cyclohexane;  
(-)-*trans*-[2-(4-morpholinyl)-1-(2-naphthenethoxy)]cyclohexane;  
(+)-*trans*-[2-(4-morpholinyl)-1-(1-naphthenethoxy)]cyclohexane;  
(-)-*trans*-[2-(4-morpholinyl)-1-(1-naphthenethoxy)]cyclohexane;  
(+)-*trans*-[2-(4-morpholinyl)-1-(4-bromophenethoxy)]cyclohexane;  
(-)-*trans*-[2-(4-morpholinyl)-1-(4-bromophenethoxy)]cyclohexane;  
(+)-*trans*-[2-(4-morpholinyl)-1-[2-(2-naphthoxy)ethoxy]]cyclohexane;  
(-)-*trans*-[2-(4-morpholinyl)-1-[2-(2-naphthoxy)ethoxy]]cyclohexane;  
(+)-*trans*-[2-(4-morpholinyl)-1-[2-(4-bromophenoxy)ethoxy]]cyclohexane;  
(-)-*trans*-[2-(4-morpholinyl)-1-[2-(4-bromophenoxy)ethoxy]]cyclohexane;  
(+)-*trans*-[2-(4-morpholinyl)-1-(3,4-dimethoxyphenethoxy)]cyclohexane;  
(-)-*trans*-[2-(4-morpholinyl)-1-(3,4-dimethoxyphenethoxy)]cyclohexane;  
(+)-*trans*-[2-(1-pyrrolidinyl)-1-(1-naphthenethoxy)]cyclohexane;  
(-)-*trans*-[2-(1-pyrrolidinyl)-1-(1-naphthenethoxy)]cyclohexane;  
(+)-*trans*-[2-(4-morpholinyl)-1-(2-(benzo[b]thiophen-3-yl)ethoxy)]cyclohexane;  
(-)-*trans*-[2-(4-morpholinyl)-1-(2-(benzo[b]thiophen-3-yl)ethoxy)]cyclohexane;  
(+)-*trans*-[2-(4-morpholinyl)-1-(2-(benzo[b]thiophen-4-yl)ethoxy)]cyclohexane;  
(-)-*trans*-[2-(4-morpholinyl)-1-(2-(benzo[b]thiophen-4-yl)ethoxy)]cyclohexane;  
(+)-*trans*-[2-(4-morpholinyl)-1-(3-bromophenethoxy)]cyclohexane;  
(-)-*trans*-[2-(4-morpholinyl)-1-(3-bromophenethoxy)]cyclohexane;  
(+)-*trans*-[2-(4-morpholinyl)-1-(2-bromophenethoxy)]cyclohexane;  
(-)-*trans*-[2-(4-morpholinyl)-1-(2-bromophenethoxy)]cyclohexane;  
(+)-*trans*-[2-(4-morpholinyl)-1-(3-(3,4-dimethoxyphenyl)-1-propoxy)]cyclohexane;  
(-)-*trans*-[2-(4-morpholinyl)-1-(3-(3,4-dimethoxyphenyl)-1-propoxy)]cyclohexane;  
(1R,2R)/(1S,2S)-2-(4-morpholinyl)-1-(3,4-dichlorophenethoxy)cyclohexane;  
(1R,2R)/(1S,2S)-2-(3-ketopyrrolidinyl)-1-(1-naphthenethoxy)cyclohexane;  
(1R,2R)/(1S,2S)-2-(1-acetylpirperazinyl)-1-(2-naphthenethoxy)cyclohexane;

(*1R,2R*)/(*1S,2S*)-2-(3-ketopyrrolidinyl)-1-(2,6-dichlorophenethoxy)cyclohexane;  
(*1R,2R*)/(*1S,2S*)-2-[1,4-dioxa-7-azaspiro[4.4]non-7-yl]-1-(1-naphthenethoxy)cyclohexane;

(*1R,2S*)/(*1S,2R*)-2-(4-morpholinyl)-1-[(2-trifluoromethyl)phenethoxy]cyclohexane;

(*1R,2R*)/(*1S,2S*)-2-(3-ketopyrrolidinyl)-1-[3-(cyclohexyl)propoxy]cyclohexane;

(*1R,2R*)/(*1S,2S*)-2-(3-acetoxyppyrrolidinyl)-1-(1-naphthenethoxy)cyclohexane;

(*1R,2R*)/(*1S,2S*)-2-(3-hydroxypyrrolidinyl)-1-(2,6-dichlorophenethoxy)cyclohexane;

(*1R,2R*)/(*1S,2S*)-2-(3-ketopyrrolidinyl)-1-(2,2-diphenylethoxy)cyclohexane;

(*1R,2R*)/(*1S,2S*)-2-(3-thiazolidinyl)-1-(2,6-dichlorophenethoxy)cyclohexane; and

(*1R,2S*)/(*1S,2R*)-2-(3-ketopyrrolidinyl)-1-(1-naphthenethoxy)cyclohexane; and

including isolated enantiomeric and diastereomeric isomers thereof, and mixtures thereof; and pharmaceutically acceptable salts thereof.

170. (Previously Presented) A composition comprising a compound according to any one of claims 160-169 in combination with a pharmaceutically acceptable carrier, excipient or diluent.